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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/028,616

12/21/2001

Gundu M. Sabde

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07/27/2004

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EXAMINER

MCDONALD, SHANTESE L

ART UNIT

PAPER NUMBER

3723

DATE MAILED: 07/27/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/028,616	<b>Applicant(s)</b> SABDE, GUNDU M.	
	<b>Examiner</b> Shantese L. McDonald	<b>Art Unit</b> 3723	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on 10 May 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☐ Claim(s) 1-33 and 35-42 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☐ Claim(s) 1-33 and 35-42 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>5/10/04</u> . | 6) <input type="checkbox"/> Other: _____  |

***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 39-42 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 39 claims that “the rate of removal of material is greater...”, in line 11. It is unclear as to where the material is coming from, the only material that has been claimed in the claim is the backing material. Is this the material that is being removed, if not, then there is insufficient antecedent basis for the material claimed in line 11.

Claim 42 claims that “the method results in reduced smearing and defect formation of the surface compared to the same method and surface planarized with a fixed abrasive article comprising alumina or silica particles”. The claim doesn’t claim what the fixed abrasives in the method are, therefore how can it be compared to the fixed abrasives comprising alumina or silica.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-33 and 35-38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Russel et al. as modified by James et al. and further in view of Sachan et al. (WO 01/44396)

Russell et al. teaches a planarization method comprising positioning a Group VIII metal-containing surface, which is elemental platinum and a platinum alloy, (col. 3, lines 33-38), of a substrate, the substrate being a wafer, to interface with an abrasive article and supplying a planarization composition which comprises an oxidizing agent, (col. 5, line 20). Russell et al. also teaches providing a wafer having a patterned dielectric layer formed thereon and a Group VIII metal-containing layer formed over the patterned dielectric layer, (col. 1 line 57-col. 2, line 22). ). Russell et al. teaches all the limitations of the claims except for the abrasive article being a fixed abrasive article comprising a plurality of abrasive particles which are  $\text{CeO}_2$  having a hardness no greater than about 6.5 Mohs dispersed within a binder adhered to at least one surface of a backing material, the Group VIII metal being present in an amount of about 10, 20 or 50 atomic percent or more and the Group VIII surface being removed relative to the dielectric layer at a ratio of at least 10:1. James et al. teaches an abrasive article being a fixed abrasive article comprising a plurality of abrasive particles which are  $\text{CeO}_2$  having a hardness no greater than about 6.5 Mohs, (col.5, lines 40-45) dispersed within a binder, (col. 10, lines 13-31), adhered to at least one surface of a backing material, (col. 13, lines 1-4). James et al. teaches that polishing can be performed with free abrasives in

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a polishing fluid and a polishing pad devoid of fixed abrasives, (col. 2, lines 30-33), and also with a fixed abrasive pad, with a polishing solution, free of abrasives.

Sachan et al. also teaches polishing a Group VIII metal containing surface of a wafer, using a fixed abrasive polishing pad, (pg. 8, lines 24-25) which comprises  $\text{CeO}_2$  having a hardness no greater than about 6.5 Mohs, (pg. 4, lines 1-6),

Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to substitute the pad of Russell with the fixed pad, as taught by James et al. and Sachan et al. in order to enhance the planarizing capabilities, and to minimize scratches and defects in the metal.

It would have been further obvious to provide the method of Russell with the Group VIII metal being present in an amount of about 10, 20 or 50 atomic percent or more dependant upon the substrate type, and the Group VIII surface being removed relative to the dielectric layer at a ration of at least 10:1, in order to control the removal rate, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art.

***Response to Arguments***

Applicant's arguments filed 5/10/04 have been fully considered but they are not persuasive. \*\*\*

The examiner has considered the arguments filed on 5/10/4, and has modified that rejection. The applicant argues that there was no specific teaching of planarizing a Group VIII metal-containing surface with a fixed abrasive containing particles such as ceria (without any adverse smearing or defect formation), or other abrasive particles, and that there is no motivation to combine Russell et al. with James et al. The examiner disagrees, and therefore has further cited the Sachan reference to show that there is indeed a teaching of planarizing a Group VIII containing surface with a fixed abrasive containing particles such as ceria, with a mohs hardness of no greater than 6.5, in order to reduce smearing or defects, (pg. 4, lines 4-6), since this has been taught, then there is motivation to combine the above listed references.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shantese L. McDonald whose telephone number is (703) 308-8722. The examiner can normally be reached on 8:00 a.m. - 4:30 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph Hail can be reached on (703) 308-2687. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read "Joseph J. Hail, III".

S.L.M.  
July 26, 2004

Joseph J. Hail, III  
Supervisory Patent Examiner  
Technology Center 3700